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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,445	11/08/2001	Young-Rae Park	SEC.848	5077

7590

05/09/2003

VOLENTINE FRANCOS, PLLC  
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12200 SUNRISE VALLEY DRIVE  
RESTON, VA 20191

EXAMINER

GEYER, SCOTT B


ART UNIT

PAPER NUMBER

2829

DATE MAILED: 05/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/986,445	PARK ET AL.	
	Examiner	Art Unit	
	Scott B. Geyer	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. The restriction requirement established in the office action (paper no. 7) is withdrawn. All claims have been treated on their merits below.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

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3. This application is in condition for allowance except for the following formal matters:

### ***Drawings***

**3A.** The drawings are objected to because of minor informalities as follows:

Figure 7: numerals "132A" and "130A" are not defined in the specification;

Figure 8: numeral "106A" is not defined in the specification.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. (To overcome this objection, the applicant should either delete those notations from the figures, or amend the specification to include these notations. If the specification is to be amended, the applicant should not add new matter).

**3B.** The drawings are objected to under 37 CFR 1.83(a) because they fail to show symbols "X" and "O" as defined in the specification on page 10, lines 15-20,

specifically for figure 9. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

**3C.** The disclosure is objected to because of the following informalities:

Page 3, line 9: delete hyphen;

Page 3, line 13: change "undesireable" to - - undesirable - -;

Page 4, line 2: change "exhibit" to - - exhibits - -;

Page 4, line 14: change "shorting the" to - - shorting of the - -;

Page 6, line 2: change "gate spacer 124" to - - gate spacer 128 - -;

Page 6, line 11: change "spin on glass" to - - spin-on-glass - -;

Page 7, line 10: change "Mn<sub>2</sub>O<sub>3</sub>," to - - Mn<sub>2</sub>O<sub>3</sub> - - (delete comma);

Page 8, line 12: change "180" to - - 108 - -;

Page 8, lines 12-13: change "by the dry etching" to - - by dry etching - -;

Page 8, line 18: change "titanum" to - - titanium - - (twice in line of text);

Page 9, line 2: change "improves" to - - improve - -;

Page 9, line 6: add comma after "embodiment";

Page 9, line 10: change "The slurry can be a slurry including" to - - The slurry can include - -;

Page 9, line 11: delete comma after "ceria";

Page 9, line 17: change "the" to - - a - -;

Page 11, line 6: change "a" to - - an - -.

Appropriate correction is required.

### ***Claim Objections***

**3D.** Claims 2, 4, 6, 8, 10, 17 and 18 are objected to because of the following informalities:

Claim 2, line 2: change "nitride" to - - silicon nitride - - or change "(SiN)" to - - (N) - - to avoid a rejection under 112 2<sup>nd</sup> paragraph;

Claim 2, lines 2-3: change "a aluminum" to - - an aluminum - -;

Claim 4, lines 1-2: change "nitride" to - - silicon nitride - - or change "(SiN)" to - - (N) - - to avoid a rejection under 112 2<sup>nd</sup> paragraph;

Claim 6, line 1: change "inerdielectric" to - - interdielectric - -;

Claim 6, lines 2-3: define acronyms "HDP", "PE-TEOS", "USG", "BPSG", "PSG" and "FOX";

Claim 8, line 2: define acronym "CMP";

Claim 10, line 1: change "particle" to - - particles - -;

Claim 10, line 2: change "and Mn<sub>2</sub>O<sub>3</sub>" to - - manganese oxide (Mn<sub>2</sub>O<sub>3</sub>) - -;

Claim 17, lines 2 and 3: change "titanum" to - - titanium - -;

Claim 18, line 1: change "is performed" to - - is performed from - -.

Appropriate correction is required.

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***Allowable Subject Matter***

4. Claims 1-20 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter: applicant's sole independent claim 1 recites a step-wise method of forming a contact pad on a semiconductor device, including formation of a gate structure, formation of a stopping layer, formation of an interdielectric layer over the gate structure, planarizing the interdielectric to expose the gate upper dielectric on the gate structure, etching the interdielectric layer, depositing conductive material and planarizing the conductive material. The following references are cited by the examiner as related art: Park et al. (6,511,919 B1), Huang (6,380,042 B1), Cho et al. (6,177,320 B1), Ban et al. (6,071,802) and Kenney (5,684,313). The prior art of record and to the examiner's knowledge, does not teach or render obvious, at least to the skilled artisan, the instant invention regarding the stepwise method of forming a contact pad on a semiconductor device as detailed in applicant's claim 1, particularly forming a stopping layer over a gate structure, forming an interdielectric layer over the stopping layer and then planarizing the interdielectric to expose at least the gate upper dielectric layer.

***Conclusion***

6. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

7. A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703) 306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. The examiner may also be reached via e-mail: [scott.geyer@uspto.gov](mailto:scott.geyer@uspto.gov)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

**SCOTT GEYER  
PATENT EXAMINER**

SBG  
May 5, 2003

  
**KAMAND CUNEO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800**